

In Lake Taupo, the steepest gradient leading to the highest point is found at Karangahape, on the western shore, but the deepest water lies in the north-east part of the lake. In Rotoiti there is a similar lack of correspondence between Matawhaura, at the east end of the lake, and the deep water which lies some distance to the west of it.

The two lakes Taupo and Rotoiti have in common a tank-like form of basin. It is also possible that a relation between the two may be indicated by the presence in each of isolated banks or shoals. Examples of such shoals are found in the west end of Rotoiti, and in Taupo between Karangahape and the island Motutaiko.

The remaining lakes form a very heterogeneous lot. Rotorua is a saucer-like depression, a mere continuation of the whole catchment basin in which it lies, regular in its outline and in its subaqueous slopes. It cannot be compared to the more abrupt and tank-like lakes among which it lies, though it may possibly have with them a common origin in subsidence, similar but less violent.

Waikaremoana presents features which connect it with the valley lakes. It may be considered as a system of radiating valleys, having its deepest depression at the point where all the valleys meet. It differs, however, from the southern lakes in the more blunt and open form of its valleys, and in the fact that sections of its basin show an outline resembling rather the letter V than the letter U.

Waikare and Whangape are so shallow as to rank rather with swamps than with lakes, in spite of their considerable area. The interest of the former lies chiefly in its peculiar relation to the Waikato river, a relation which enables it to reduce the harmful effects of floods, though not lying on the river's actual course.

THE WALDSEEMÜLLER FACSIMILES.*

By EDWARD HEAWOOD, M.A.

THE promised facsimiles of the Waldseemüller maps, discovered in 1901 by Prof. Fischer at the castle at Wolfegg, have at last been published, and in a style which is fully worthy of the importance of the subject; both the actual reproduction of the maps and the general get-up of the volume being a credit to all concerned. The excellence of the result is due, in part, to a grant from the Imperial Academy of Sciences at Vienna, which has made it possible to do justice to the subject without unduly increasing the cost. The matter supplied by

* 'The oldest map with the name America of the year 1507, and the *Carta Marina* of the year 1516, by M. Waldseemüller (Ilacomylus).' Edited by Prof. Jos. Fischer and Prof. Fr. v. Wieser. Innsbruck: Wagner. London: Henry Stevens, Son and Styles. 1903.

the maps is so extensive, that it will be long before the subject is exhausted as a field for study. All that can be done at present is to put before the reader the results of a preliminary examination.

The main facts of the history of the maps and the lessons to be learnt from them are outlined in an introduction by Profs. Fischer and Wieser, who, since the discovery of the maps by the former, have been at great pains to elucidate the questions suggested by them, through a comparative study of the literature and cartographic documents of the period. The general conclusions arrived at will meet with ready acceptance, although on occasional points of detail it may be permissible to differ. It may be regretted that the space allotted to this introduction hardly admits of an exhaustive treatment of the subject, a certain restraint and compression of style being frequently apparent, while lines of inquiry are now and again suggested without being pursued to a definite end. A more exhaustive presentment would no doubt have unduly delayed publication, and students will be grateful that the maps have been made available with as little delay as has occurred. The text is printed both in German and English, but the translation is not quite a success, German idiomatic phrases being too often literally reproduced.

For an outline of our previous knowledge of Waldseemüller and his work, and of the circumstances attending the discovery of the maps, reference may be made to Mr. Soulsby's article in the *Journal* for February, 1902, attention being at present given to the maps themselves, their sources, and influence on subsequent cartography. As mentioned in that article, each of the maps (the World-map of 1507 and the *Carta Marina* of 1516) consists of twelve woodcut sheets, capable of being fitted together to form a large wall-map, and with an artistic border round the outer margin. The whole twenty-four were bound together in a folio volume, which had been the property of the well-known map-maker Johann Schöner, as shown both by his book-plate inserted inside the cover and by the fact that strips of parchment, cut from prints of his terrestrial and celestial globes of 1515 and 1517, had been used in the binding. The volume contained, besides, the 1515 star-map of Stabius-Heinzel, drawn by A. Dürer, as well as gores of the celestial globe just mentioned. On various sheets of both maps manuscript corrections and additions have been made, while a list of *errata*, originally engraved on a sheet of the *Carta Marina*, has been covered with a pasted slip, the corrections having been made in their proper places. In the case of one sheet—that including West Africa—the *errata* were apparently so numerous that it was necessary to re-write the legends on a manuscript copy,* which

* The facsimile reproduction of this sheet measures appreciably less than the corresponding engraved sheet, but this may either be due to a shrinking of the original paper, or to a slight error in the reproduction.

has been bound up with the rest, while the original sheet—the only one left in its uncorrected state—was inserted loosely in the volume. The conclusion is drawn by the editors that the sheets which have come down to us were “proof-sheets,” by which must be understood copies revised in preparation for a new edition, not “pulls” taken before the first issue of the maps. In support of their character as proofs, it is stated that the print *overlies* the network of single degrees drawn in red upon the sheets, though it is hard to believe that—were this network drawn *before* the print was made—we should find such accurate “register” as we do; * while the motive for drawing such network is left unintelligible. Is it not possible that the network and marginal degree-notation (also inserted by hand) were put in by Schöner for his own map-making purposes, for which we know that both maps were certainly utilized?

The Carta Marina is definitely signed by Waldseemüller, while the earlier map is without any statement either of date or authorship. But the evidence, both internal and external, in favour of its being the long-lost map issued with the ‘Cosmographiæ Introductio’ is so strong as practically to lead to certainty. We may dispense with a detailed presentment of the argument, supplied in full by the editors, the main points consisting in the entire agreement with the statements in the treatise, both as regards the map in itself and the points in which it differed from the globe issued in the same year,† and the general resemblance with the Carta Marina in size, plan, and execution.‡ Both maps, especially the later one, are fine specimens of wood-engraving, and the blocks were probably prepared at Strassburg (not St. Dié), then a well-known centre of the wood-engraver’s art. This is also indicated by the water-mark of the 1507 map.

To come now to the maps themselves. That of 1507 is a general map of the world, surrounded by an ornamental border with spirited

* On the map of 1507 every tenth degree-line has been engraved, while the network of single degrees has been inserted, in certain parts of the map, by the separate subdivision into tenths of each larger space. In the Carta Marina, on which no net was engraved, the subdivision has evidently been made by stepping the degree-spaces, beginning from one margin, with the result that a small space is sometimes left over at the other end.

† Known to us, as has been demonstrated by Prof. Gallois, through the gores in the collection of the Prince of Liechtenstein, a new reproduction of which is given in the text. The idea which has been put forward, that the insets in the large map form the representation *in solido*, cannot certainly be accepted.

‡ In reference to the much-quoted statement of Trithemius, as to the globe and map purchased by him in 1507, the editors make out a more satisfactory agreement than is quite justifiable. Trithemius says that the map extended south almost to the tenth parallel, meaning, no doubt, the tenth 5-degree line, or 50°. The 1507 map ceases at 40°, except where it is prolonged to include South Africa, while the parallels are drawn at intervals of 10°, and only in a few instances are the spaces bisected in the margin.

representations of the winds, imaginary portraits of Ptolemy and Vespucci, and two small insets which are noteworthy as the first instances of a division of the world into two hemispheres, each on its own projection. They have long been known, though not as by Waldseemüller, from the close copies brought out by Stobnicza, and several times reproduced within recent years.* The main map, as might have been suspected from the copies of it by later hands (Glareanus, 1510; Apianus, 1520, etc.), is on the second of Ptolemy's projections, used for the Ptolemaic world-maps of Donnus Nicolaus, but now for the first time extended in longitude so as to embrace the whole circumference of the globe. There is a slight difference between the large map and the insets (of which, however, the editors say nothing), in that in the former the meridians make an angle at the equator, while they form continuous curves on the insets. This may be the result of faulty construction, which would not be surprising in view of the difficulties caused by the division of the map into so many sheets. Its immediate cause is apparently the somewhat excessive lengths of the degrees of longitude on the equator as compared with those of latitude on the mean meridian, and the fact that south of the equator the degrees of latitude are somewhat too short.†

As had been known from passages in the 'Cosmographiæ Introductio,' the map is a compromise between the Ptolemaic tradition, by which Waldseemüller was still to a great extent bound, and the newer knowledge embodied in the Portuguese nautical charts. For a large part of the old world the delineation closely follows that of the Ulm maps of 1482 and 1486, even to the precise trend of the mountain ranges. For the eastward extension beyond the limits of the Ulm maps the sources are somewhat more obscure, though maps identical in all the main particulars have long been known, including Behaim's and the Laon globes, the map of Martellus Germanus (about 1489), and the Portuguese map in the possession of Dr. Hamy. The editors incline to the opinion that a chart of the Hamy type has exercised a preponderating influence, for it too combines the new discoveries with a representation of Eastern Asia similar to Waldseemüller's. Certain facts, however, not referred to by the editors, would seem to point rather to a map of the Martellus type as one of the main sources drawn upon. In this map, too, we find an exact copy of the Asiatic features of the Ulm maps (not inserted in the Hamy map), combined with a similar extension towards the east and

* While Stobnicza was content merely to copy these insets, Glareanus, in the small manuscript maps lately brought to light, took the trouble to make a reduction of the large map.

† The projection differs from the heart-shaped projection of Werner in that the centre of the concentric circles of latitude is not at the north pole, but a little over 181° from the equator. It was to a certain extent modified by Glareanus, but closely adhered to by Apianus and others.

south-east, while certain features of the 1507 map are found in Martellus alone, of the sources mentioned. Among these are the delineation of the north coast of Asia, with the representation of forests at various parts; the location of the site of St. Thomas's death, and the position of the legend "Regnum Lac" on the supposed south-eastern peninsula; the term "Oceanus Indicus Meridionalis," applied to the Indian ocean (in distinction from the "Oc. Orientalis Ind." east of China); while on the west coast of Africa certain of Waldseemüller's legends, not occurring on the Hamy, Cantino or Canerio charts, are to be found on Martellus' roughly drawn world-map.* It need not be supposed that Waldseemüller necessarily copied direct from Martellus, but the facts quoted point, in harmony with the already expressed view of Mr. Ravenstein (*Journal*, vol. xx. p. 462), to the probable existence of some early source from which Martellus, Behaim, the maker of the Laon globe, and Waldseemüller alike drew. The point is of some interest by reason of the extraordinary vitality (due to its adoption by Waldseemüller) which characterized this particular delineation of South-Eastern Asia, both in respect of the large islands from Cipangu to Madagascar bearing names derived from Marco Polo, and of the great peninsula which is such a feature on maps of the period.† A further possible point of connection between Martellus and Waldseemüller is the fact (which we have not seen noticed) that, in spite of apparent difference of projection, the "Hydrographia sive Charta Marina" of the 1513 Ptolemy might almost, apart from a slight difference of scale, have been traced from that of Martellus in the parts relating to Europe, North Africa, and the whole of Northern and Eastern Asia.‡

* The fact that the Martellus map is without scale or degree net, and is, besides, very roughly drawn, makes it difficult to compare it effectively with other maps. The shape of the map border, combined with the similarity to the Ulm Ptolemy map, makes it fairly certain that it must have been based on a map drawn, like the latter, on Ptolemy's second projection. An attempt to reconstruct the degree net on this basis shows that while the co-ordinates in certain parts agree fairly well with Ptolemy's, in others there is a wide divergence. In regard to the whole south-western quarter, the data for which are evidently taken from portolani, it is impossible to suppose that such a degree net was used at all, these portions being apparently taken direct from some chart on a rectangular projection, and pieced on to the rest without due regard to orientation. In fact, the whole of this part seems to be drawn at an angle of some 6° with the major axis of the rest of the map, and this would account for the inclination of the axis of the Mediterranean, and with it of North Africa; the low latitude of the British Isles; and the inclination of the axis of the Red sea as compared with Ptolemaic maps.

† The fact that this peninsula is obtained directly from Ptolemy by breaking through his coast-line at the point where his positive data cease, renders it probable that the prototype of all these maps was drawn by a popularizer of Ptolemy, such as Donnus Nicolaus, whose delineation of inner Asia is, as we have seen, exactly copied both by Martellus and Waldseemüller.

‡ It is not absolutely certain that the 1513 map was by Waldseemüller, though its close agreement with the Carta Marina of 1516 hardly permits doubt of the fact.

For the whole of the newly discovered regions, the map which formed Waldseemüller's chief source was evidently of the Canerio type, if not the Canerio map itself.* This is shown by the entire agreement of the two in respect of the new world; by the adoption in the later map of many of the legends round the coasts, even where these themselves are shown differently, as in the case of South-East Asia; and by the placing of Portuguese flags in identical positions along the coasts. The point which gives the map its unique character in the eyes of Americanists is of course the fact, long suspected from previously known data, that the name America is on it (for the first time, so far as can be known with certainty †) applied to the western continent. The name is placed on South America just above the tropic, in by no means large characters, and this gives some support to the idea that the name was intended in the first instance to apply only to the southern part of the new world—the portion, in fact, with which Vespucci himself was acquainted. But too much stress must not be laid on this, for the parts of North America then known would be regarded rather as adjacent islands than as part of a continental mass (except by those who identified them with Asia), while the location of the name Parias, derived from Vespucci's alleged first voyage (erroneously spelt Lariab in the Italian version of the letters), on the northern portion of the new lands, shows that Vespucci's claim to have sailed along this northern coast was allowed by Waldseemüller. In discussing Glareanus' copies of the 1507 map, Prof. Elter called attention to the difference in colour there found between North and South America. But this is fully accounted for by the common practice of showing islands in a distinct colour from the adjacent mainland, while in other maps by Glareanus recently brought to light and described by the present writer at the Southport meeting of the British Association, the two portions of the new world are shown in precisely the same colour.

Owing to the adoption by Waldseemüller of Ptolemy's erroneously placed equator, the Rio Cananor, the furthest point named on the South American coast, is brought down beyond 40° S., while the Portuguese charts place it between 30° and 35°. The erroneous rendering "Abbatia (corruption of A baia) omnium sanctorum" appears on the map, as in the Latin version of the "letters," though the editors seem mistaken in attributing the mistake to Waldseemüller in the first

* The American portions of this map are shown in Kretschmer's atlas and in Marcel's collection. A drawing of the south-eastern part was given by Mr. Ravenstein in his "Vasco da Gama" (Hakluyt Society).

† It will be remembered that Mr. Henry Stevens regards a map lately found by him in a copy of the 1513 Ptolemy, which also bears the name America, as probably slightly earlier, but on this no opinion can be expressed until Mr. Stevens' case is stated more fully.

instance.* Undue importance seems also to be attached by them to certain differences between the large map and the inset in regard to the delineation of America. One consists in the showing of a strait between North and South America in the large map, while the inset shows the land as continuous. But the break in the land can hardly indicate any definite belief in a strait, as the coast-lines are merely copied from the Canerio chart, which marked only the parts supposed to have been visited; while on one of his maps Glareanus expressly states that the extent of the land in this region had not been ascertained. Another contrast is supposed to be seen in the representation of the west coast of South America, the angle of which is stated to be much more acute in the smaller map. This will be found to be due almost entirely to the projection, the curves of the meridians being in the opposite sense in the two maps. In both cases, moreover, the coast is avowedly shown as unknown, so that any difference would necessarily be devoid of meaning.

The mapping of the interior of Africa presents an interesting problem, though this is passed over very lightly by the editors. In spite of the evident guesswork on which it is based, this portion is of interest as representing the first origin of the attempted combination of Ptolemaic and recent *data* which was of such supreme influence on African cartography for the best part of two centuries. M. Wauters, in his ingenious paper on Lake Sachaf, has traced the fantastic representation of Central African geography, which culminated in Dapper's map of the seventeenth century, to a source early in the sixteenth, and has even—through an error, as it happens—correctly ascribed the original inspiration to Waldseemüller. The importance of the Ptolemaic tradition in the gradual evolution of the Dapper type of map is shown by the fact that it was precisely in the countries where that tradition held its ground longest that the fictitious representations of Central African geography were also most prevalent; and the discovery of Waldseemüller's two maps materially strengthens the evidence for this view. In the 1507 map, *e.g.*, it is evident at a glance that the representation of the Nile and its lakes is Ptolemaic pure and simple, but that place-names have been added from recent sources, though these are not so easy to identify. The map is practically the first in which the names properly belonging to Abyssinia and its vicinity are associated with the Ptolemaic lakes, for though we have a similar southward misplacement in Fra Mauro, this is due merely to an exaggeration of scale affecting the whole of North-East Africa, and

* The corruption is to be found in the map, closely resembling the Hamy chart reproduced by Kunstmann in his Atlas (No. 2), and of which a drawing is given by Kretschmer. The date of this can hardly be much later than 1502. But even in this case the error may have originated with Vespucci.

not to a conscious association of the names with more southern regions. Again, on Behaim's globe, the Ptolemaic basis is not so pronounced. The *Carta Marina* carries us one step further in the process of evolution, being much more filled up with detail, and approaching more closely the later representation of Mercator, Gastaldi, and the host of subsequent imitators.

The idea that Waldseemüller may have copied to some extent from Behaim receives no great support from an examination of the 1507 map, although certain resemblances in the nomenclature of inner Africa cannot be denied. As Mr. Ravenstein has already pointed out (*Journal*, vol. xx. p. 462), such resemblances are probably due to the fact that a common (though at present unknown) source has been drawn upon by the two map-makers, as well as by the engraver of the Laon globe. Among the names given by both Behaim and Waldseemüller, in more or less similar positions (Gafat, Zara, Dedel, Abia, Zema, Delsam, Gargisa, etc.), most are derived from names belonging properly to Abyssinia and neighbouring regions. The name Sacaff, destined to play so important a part in the fanciful geography of the next two centuries, appears for the first time, in 1507, as that of a lake in the far south-west, discharged by a river whose course recalls that of the Abai—the name Abia occurs near it—though not connected in any way with the Nile. All these names are scattered at haphazard over the map, which evinces far less accurate knowledge of the Abyssinian region than was displayed by Fra Mauro.

We must now pass to the *Carta Marina*, of which, though an equally remarkable specimen of cartography, there is perhaps less need to say much, seeing that it is, broadly speaking, merely a revised and augmented edition of the Canerio chart, with which it agrees in projection, delineation of the coast-lines, and area included; for, unlike the 1507 map, it omits the whole space between 152° and 280° east from the Canaries, or that intervening between the east of Asia and America.* As regards the outline, it is also in close agreement with the maps in the 1513 Ptolemy. Canerio's delineation of Southern Asia has now been adopted, the author having at last made up his mind to discard the Ptolemaic outlines, and the exaggerated easterly extension of Africa found in maps of the Canerio type, with the resulting displacement of the axis of the Red sea, has been closely copied.† The most remarkable characteristic of the map, and one in which its influence may have long been felt, is its indication that Waldseemüller had at this time reverted

* This was but natural in the Canerio chart, based on the nautical knowledge of the day.

† In spite of this, however, the extent in longitude of Southern Asia has been so much reduced that the "Sinus Magnus" falls to the west, not to the east, of Ptolemy's position, accepted in 1507. The editors' statement that the deviation from Ptolemy's longitudes is due to the eastward extension of Africa, is thus not entirely correct.

to the belief that the newly discovered western lands formed part of Asia, as is stated in the legend on the portion of North America shown, "Terra de Cuba Asiæ para." * This is the more remarkable that, in the sketch-map in the 'Margarita Philosophica' of 1515, shown by Wieser to have been almost certainly the work of Waldseemüller,† the existence of an intervening ocean is expressly indicated, while the world-map in the 1513 Ptolemy seems to presuppose the same view, although by stopping short at a line through Cuba, it expresses no definite opinion on the subject. Contrary to what might be thought at first sight, the 1516 chart does not discard the great south-eastern peninsula of Asia, for the legend "Sinus magnus" to the east of the Malay peninsula, coupled with the fact that the peninsula is retained in the 1513 and 1515 maps, certainly implies that, had space allowed, Waldseemüller would still have adhered to his old drawing of this region. As regards the American portion, it is noteworthy that, though he gives the name Cuba to the land-mass west of the true Cuba, he still gives the outline of the latter (without a name) in its proper place. But instances of similar confusion are frequent about this time,‡ and all may be due to the omission of Cuba from its proper place by Ruysch. Waldseemüller's error was naturally propagated by his copyists (Schöner, 1520; Novus Orbis, 1532), among whom it seems we must number the maker of the "Nordenskiöld" gores, to which their owner assigned a date previous to 1516.§ But it is singular that the copyists, while taking this erroneous nomenclature from the 1516 map, still adhere to the general notions of that of 1507.

Another noteworthy difference between the maps of 1507 and 1516 is the omission of the name America from the latter, as from the 1513 Ptolemy, which, together with the more prominent mention of Columbus, favours the view that the cartographer was at this time anxious to repair the wrong done to the latter by his earlier suggestion. The name Parias has been transferred to the north of South America, while further south we find, as in the 1515 map, the name Prisia, afterwards corrected to Brasilia. The 1516 map differs from those of 1513 and

* Ruysch had, of course, already accepted such a connection as regards the more northern part of America, while Glareanus (1510) and Bernardus Sylvanus (1511) had admitted its possibility.

† This sketch-map would seem to have been originally drawn to embrace the same proportion of the Earth's circumference as the Carta Marina, a vertical line cutting off the part omitted from the latter.

‡ Thus Stobnicza gives the name Isabella to the western land, leaving Cuba nameless. The Margarita map of 1515 names both Haiti and Cuba "Isabella," and the western land Zoana mela (probably a corruption of Joana insula, as shown by Wieser). In the Novus Orbis map of 1532 (Basel edition) only one island is shown, the name Spagnola being placed below it, and Isabella above.

§ It is curious that in certain details not taken from Waldseemüller, these gores are closely followed by Bordone in his very rough map of 1528.

1515 in still leaving open the strait between North and South America, owing probably to the closer adherence to the Canerio map. The most important difference from the latter consists (apart from such details as the different shape of Ceylon and Madagascar, and the substitution of "Samotra" for "Ataprobana") in the copious nomenclature of the interior of the continents, derived from various literary sources enumerated by the editors, but into which we cannot enter here.

There is one point not yet alluded to on which it would be interesting to have further light, viz. the representation of Java in quite a new position south of the Malay peninsula in the 1516 map. It does not appear whether this is original, or taken, like the rest, from the Canerio chart. Mr. Ravenstein's sketch of the latter leaves the question open, as the space is covered by an inset. In any case, it seems not impossible that Waldseemüller's delineation of Java as "*Java insula maxima*," to the south of and much larger than Sumatra, may have supplied the inspiration to Desceliers and others of his school for the "*Jave la Grande*," which has given rise to so much speculation. The contour of the coast is not unlike that of the northern part of *Jave la Grande*, but a more striking fact is the occurrence, on Waldseemüller's Java, of a picture of cannibals, which has certainly, either directly or through copies, inspired the similar picture on the great Java of Desceliers' map of 1550.

The influence exercised by Waldseemüller on the map-making of his time is too obvious to require speaking of at length. Few maps have been so unblushingly pirated through so long a period as the 1507 world-map, while the influence of the *Carta Marina*, though not quite so obvious, is shown by the various maps in which its woodcuts have been reproduced, though often with reference to quite different parts of the world. This was due, no doubt, to the imposing style in which the maps were produced, and in the case of the earlier one, the large number of copies issued. It must be confessed that the influence was not entirely beneficial, as tending to stereotype the geographical conceptions of the time, and lessen the influence of the more accurate maps already beginning to appear. If the editors err at all, it is certainly not on the side of underrating Waldseemüller as a critical cartographer, for it cannot be denied that he sometimes shows a somewhat slavish adherence to his authority for the time being. Instances are to be found in his retention of the Ptolemaic representation of the British Isles in 1507; of a fifteenth-century representation of Eastern Asia in 1515-16; and of the Greenland of the Zamoiski-codex type so late as 1516, even when assigning to it the name "*Terra Laboratoris*." He was not always more happy when he struck out a line for himself, as in the mapping of the interior of Africa. His great merit was the remarkable enterprise shown in planning and executing works of such magnitude as the two printed maps now brought to light, which, from

the point of view of technique, marked an immense advance on all previous work of the kind. It must be remembered, also, that these world-maps are by no means the only important productions of the Alsatian cartographer, whose European maps are, in their way, no less noteworthy.

BARON TOLL.

By Prince KROPOTKIN.

THE Russian papers announce the return to St. Petersburg of the engineer M. I. Brusneff, one of the members of the expedition of Baron Toll who went with the party of Lieut. Kolchak in search of the head of the expedition in Bennett island. M. Brusneff had received from Baron Toll the order, in case the *Zarya* should not reach Bennett island, to come to meet him with a party. Accordingly he started, with five sledges and sixty dogs, from Ust-Yansk on February 24, 1903, for New Siberia. This would seem very late, but it appears that the hunters never start before April. M. Brusneff was accompanied by a sailor, Tolstoff, and five native hunters. On March 14, N.S., they reached the Great Lyakhoff island, and there divided into two parties. Tolstoff, with three hunters, went to Kotelnai, while Brusneff, with the others, took the way of New Siberia, which they reached on March 24. Five days later M. Brusneff and his party started on for Bennett island, but they met an open sea, and were compelled to return. The end of March and April were given to the arrangement of stores of provisions. On May 3 Tolstoff joined Brusneff on New Siberia, after having searched the western and northern shore of Kotelnai, as also the north-eastern shore of Thadéeff island. Both, having no means of crossing the sea, remained where they were, continuing to search along the nearest shores in the expectation of Baron Toll's appearance. On August 12 Lieut. Kolchak came to join them in a boat, and on August 15, after having taken some provisions from Brusneff, he sailed towards Bennett island with six men.

Although Bennett island, M. Brusneff writes, is 140 versts (93 Eng. miles) from New Siberia, Lieut. Kolchak succeeded in making the passage in two days, owing to the absence of ice and a good wind, instead of the twenty-two days which it took Baron Toll. He stayed only two days on Bennett island, and, having found the documents left there by Baron Toll [their translation is given further on], he returned. In two days he reached Cape Voznesenie, in New Siberia, and, following the coast for another three days, joined Brusneff, who was then 17 miles from Cape Visoki. On August 26 Lieut. Kolchak went to Kotelnai.

On September 2 Brusneff left, with his dog-sledges, with the intention of making the round of the coasts of New Siberia. This was hard work, as the sledges had to be dragged over a snowless soil, and the party advanced only about 7 miles a day. With all that, Brusneff was the first who made the full circuit of New Siberia. No traces of Baron Toll were seen. This time was also given to collecting a supply of reindeer-meat, and while they waited for the sea to be frozen, the party prepared warm clothing and boots, made out of reindeer-fur, for the return journey. As to the party (that of Lieut. Kolchak) on Kotelnai, they had to feed for two months on white bears, which also appear in numbers on the eastern coast of New Siberia, but chiefly in September.

The Blagoveschensk strait, on the western coast of New Siberia, was frozen on December 1, and three days later M. Brusneff and his party began their return